

# STATEMENT OF CONSIDERATIONS

REQUEST BY UNITED TECHNOLOGIES CORPORATION, FOR AN ADVANCED  
WAIVER OF DOMESTIC AND FOREIGN PATENT RIGHTS UNDER COOPERATIVE  
AGREEMENT NO. DE-FC02-00CH11060; W(A)-00-037; CH-1051

The Petitioner, United Technologies Corporation (hereinafter "United Technologies"), has requested a waiver of domestic and foreign patent rights for all subject inventions arising from its participation under the above referenced cooperative agreement entitled "Cooperative Research and Development for Advanced Microturbine Systems." This cooperative agreement pertains to a program to identify, develop and demonstrate new technologies that will substantially increase the performance and reduce the cost and emissions of microturbines for electric power generation.

The specific objective of this cooperative agreement is to meet or exceed U.S. Department of Energy Goals with respect to microturbines, which are, electrical efficiency of 40%, NO<sub>x</sub> emissions of 7 ppm with natural gas as a fuel; multifuel capacity; a system cost of \$500/kW; and 11,000 hours between major overhauls. The Petitioner's plan for meeting these goals involves improving system efficiency by increasing firing temperature through the selection of improved material; recovery of energy contained within the exhaust gas by use of a process cycle known as an Organic Rankine Cycle (ORC); and finally by improving power generator and converter efficiency by reducing losses due to cooling flow


It is anticipated that this project will be performed over a period of approximately five years, from September 28, 2000 to September 30, 2005 at a total projected cost of \$13,661,870.00, of which the Petitioner's cost share is \$5,040,477.00 or an approximate 36.8%-cost share. The cumulative DOE obligation being provided under this agreement for the current budget period is \$2,142,940.00, and subject to availability of additional funds, DOE anticipates obligating an additional \$6,478,453.00 under this agreement. Although the actual cost sharing may vary for subsequent budget periods, the total cost sharing, in aggregate, will not be less than about 37 percent.

As noted in its waiver petition, Petitioner, through its divisions, Pratt & Whitney and Hamilton Sundstrand (hereinafter "Hamilton") have an established commercial position in turbine and power generation technology. Further, United Technologies Research Center, as the central research and development center, supports all the United Technologies business units and has developed technologies that enhance and improve their products, which include power generation equipment. United Technologies, through its Hamilton division, has over 50 years of experience in the development and manufacture of high performance generators. Further, United Technology, through its divisions has a wide body of intellectual property in power generation and related technologies. Exemplary of the Petitioner's expertise in the field is a list of more than 150 patents, as shown in Attachment I to the petition, in power generation, control, and related material technologies. In addition to the intellectual property, Petitioner's research personnel have published numerous technical articles on the subject. A list of these articles appears in Attachment 1. Considering Petitioner's technical expertise, established market position, and significant investment in this technology, including significant cost sharing in this cooperative agreement, it is reasonable to conclude that Petitioner will continue to further develop and commercialize the technology which may arise from this cooperative agreement.

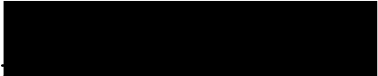
Referring to item 10 of the waiver petition, granting this waiver is not anticipated to have any adverse impact on competition. The Petitioner has only recently entered the market in microturbines. Two other manufactures maintain a significant position in the microturbine market. Therefore, it is believed that the granting of this advance waiver and the underlying cooperative agreement will broaden competition within the microturbine sector by providing another contender in this field of microturbine manufacture.

The Petitioner has agreed that this waiver will be subject to the usual government license and march-in and U.S. preference provisions, equivalent to those set out in 35 U.S.C. 202-204, as well as appropriate background patents, and data licensing provisions, including contractor licensing. Further, Petitioner has agreed to the attached U.S. competitiveness provisions (clause (t)), wherein the Petitioner has agreed that products embodying any waived invention or produced through the use of any waived invention will be manufactured substantially in the United States unless Petitioner can show to the satisfaction of the DOE that it is not commercially feasible to do so, and in any event it will not license, assign or otherwise transfer any waived invention to any entity unless that entity agrees to these same requirements.

Considering the foregoing, it is believed that granting this waiver will provide Petitioner with the necessary incentive to invest its resources in the commercialization of the results of the cooperative agreement in a fashion which will make the above technology available to the public in the shortest practicable time. Therefore, upon evaluation of the waiver petition and in view of the objectives and considerations set forth in 10 CFR Part 784, all of which have been considered, it is recommended that the requested waiver be granted.

  
Thomas G. Anderson  
Assistant Chief Counsel  
Office of Intellectual  
Property Law

Date: 5/3/01

  
Mark LaMarre  
Patent Attorney  
Office of Intellectual  
Property Law

Date: May 3, 2001

Based upon the foregoing Statement of Considerations and representations in the attached waiver petition, it is determined that the interests of the United States and the general public will best be served by a waiver of patent rights of the scope described above, and therefore the waiver is granted. This waiver will not apply to any substantial modification or extension of the cooperative agreement.

CONCURRENCE:



Robert K. Dixon  
Deputy Assistant Secretary  
Office of Power Technology

Date: 5/21/01

APPROVAL:



Paul Gottlieb  
Assistant General Counsel for  
Technology Transfer and Intellectual  
Property

Date: 5-24-01

## U.S. COMPETITIVENESS CLAUSE

### (t) U. S. COMPETITIVENESS

The Contractor agrees that any products embodying any waived invention or produced through the use of any waived invention will be manufactured substantially in the United States unless the Contractor can show to the satisfaction of the DOE that it is not commercially feasible to do so. In the event the DOE agrees to foreign manufacture, there will be a requirement that the Government's support of the technology be recognized in some appropriate manner, e.g., recoupment of the Government's investment, etc. The Contractor agrees that it will not license, assign or otherwise transfer any waived invention to any entity unless that entity agrees to these same requirements. Should the Contractor or other such entity receiving rights in the invention undergo a change in ownership amounting to a controlling interest, then the waiver, assignment, license, or other transfer of rights in the waived invention is suspended until approved in writing by the DOE.

WAIVER ACTION - ABSTRACT  
W(A)-00-019

REQUESTOR

United Technologies  
Corporation

COOPERATIVE AGREEMENT  
SCOPE OF WORK

Development of improved  
microturbine technology  
characterization by improved  
efficiency and reduced NO<sub>x</sub>  
emissions.

RATIONALE FOR DECISION

Significant experience in the  
metal hydride hydrogen storage  
systems - approximate 37% cost  
sharing.